

The present invention relates to a new and useful pliable figure toy and, more particularly, to a toy of the type disclosed in United States Patent No. 1,189,585, which includes improved armature means for supporting the toy in various bent and twisted positions.

The play value of certain prior art figure toys is enhanced by making them of a soft, flexible material, such as rubber or soft plastic, so that the toy may be bent into different shapes. While generally satisfactory, such toys are subject to the disadvantage that they have no inherent ability to retain themselves in different positions against the resiliency of the material forming the toy.

This disadvantage may be overcome to a large extent by embedding a flexible, non-resilient metal armature in the toy for retaining the toy in bent positions. Although such armatures will overcome the disadvantage associated with flexible toys which would not retain themselves in different positions, the armatures introduce an additional disadvantage. This disadvantage resides in the fact that unwanted bending will often be imparted to a limb of the toy when a child-user attempts to bend the limb at a joint.

This disadvantage may be overcome to a large extent by the dummy model shown in U. S. Patent No. 1,189,585, wherein a flexible, non-resilient armature is encompassed by soldered wire coils between the elbow, shoulder, thigh and knee joints for rendering the armature rigid between these joints.

While generally satisfactory, this type of armature has the disadvantages that the wire coils add to the first cost of the product in an amount making such an armature impractical for use in an inexpensive toy and that neither the wire coils nor the portions of the armature between the coils resists relative rotation between the armature and the material in which it is embedded.

In view of the foregoing factors and conditions characteristic of flexible figure toys having flexible, non-resilient armatures embedded therein, it is a primary object of the present invention to provide a new and useful pliable figure toy not subject to the disadvantages enumerated above and having an improved armature means for supporting the toy in various bent and twisted



positions.

Another object of the present invention is to provide a toy of the type described having soft wire armature means embedded in the limbs of the toy for maintaining them in bent positions only at the joints and rigid, non-rotatable stiffener means embedded in the toy between the joints for preventing bending and twisting of the limbs between the joints.

Yet another object of the present invention is to provide an armature means for a figure toy of the type described which includes a neck post for mounting a head on the toy.

10           A further object of the present invention is to provide a pliable figure toy which simulates a space man in a space suit and which includes accoridian-type pleats at the shoulder, elbow, hip and knee joints in combination with an armature means of the present invention.

A still further object of the present invention is to provide an armature means for a figure toy of the type described which is provided with unitary appendages for the toy.

Yet another object of the present invention is to provide a figure toy of the type described having means provided in the feet of the toy for retaining the toy in position on a base member.

20           According to the present invention, a pliable figure toy is provided with an improved armature means for maintaining the toy in various bent positions while preventing unwanted bending and twisting of predetermined portions of the toy. The toy may be molded from a suitable soft, pliable plastic material, such as polyvinyl chloride, in a shape which simulates a space man wearing a space suit.

30           The toy is provided with according-type pleats at the shoulder, elbow, hip and knee joints to magnify the space man simulation and facilitate bending the limbs of the toy at its joints. The armature means includes elongated, soft wires which are embedded in the joints and which are encompassed by rigid stiffeners embedded in the limbs between the joints and in the body of the toy for preventing bending of the limbs between the joints. The stiffeners have a non-cylindrical shape and the portions of the wires which are

encompassed by the stiffeners are flattened to a non-cylindrical shape for preventing relative rotation between the limbs of the toy and the stiffeners and between the stiffeners and the wires, respectively.

The armature means also includes a permanent magnet which is embedded in each foot for retaining the toy in an erect position on a magnetizable base member. A suitable cord may be attached to the base member for pulling the toy over a suitable surface.

10 In a modified form of the toy, each foot simulates a space man's boot, is formed integrally with the armature and is shaped to include an annular flange engageable with associated groove means provided on the base member. The armature is also provided with a neck post for supporting a separate head on the toy.

The features of the present invention which are believed to be novel are set forth with particularity in the appended claims. The present invention, both as to its organization and manner of operation, together with further objects and advantages thereof, may best be understood by reference to the following description, taken in connection with the accompanying drawings, in which like reference characters refer to like elements in the several views.

20 Figure 1 is a front elevational view of a figure toy of the present invention;

Figure 2 is a front elevational view, with parts shown in cross-section, of an armature means shown in phantom in Figure 1;

Figure 3 is an enlarged, cross-sectional view taken along line 3 - 3 of Figure 1;

Figure 4 is a partial, elevational view of the figure toy of Figure 1 showing one of the limbs thereof in two different positions;

30 Figure 5 is a front elevational view, with parts broken away to show internal construction, of a modified form of a figure toy of the present invention;

Figure 6 is an enlarged, partial cross-sectional view taken along line 6 - 6 of Figure 5;

Figure 7 is an enlarged, partial cross-sectional view taken along line 7 - 7 of Figure 5;

Figure 8 is an enlarged, partial cross-sectional view taken along line 8 - 8 of Figure 5; and

Figure 9 is a partial, cross-sectional view taken along line 5 - 5 of Figure 5 with the head of the toy removed.

Referring again to the drawings and, more particularly, to Figures 1 - 4, a pliable figure toy of the present invention, generally designated 10, includes a head 12, a neck 14, a chest 16, a trunk 18, a pair of legs 20, 22 and a pair of arms 24, 26. Each arm 24, 26 includes a hand 28, a forearm 30, an elbow joint 32 and an upper arm 34 and is connected to the chest 16 by a shoulder joint 36.

Each leg 20, 22 includes a foot 38, a lower leg portion 40, a knee joint 42, an upper leg portion 44 and a hip joint 46.

The toy 10 also includes an armature means 50 which may be embedded in the toy 10 by positioning the armature means 50 in a suitable mold before molding the toy 10 therein by conventional injection molding techniques or the like. The armature means 50 includes a substantially T-shaped chest plate 52 which is embedded in the chest 16 and which includes a depending stem portion 54 and a cross bar portion 56. The cross bar portion 56 includes a first end 58 and a second end 60 which are positioned adjacent associated shoulder joints 36 and is provided with a channel 62 extending through the ends 58 and 60 for receiving associated ends 64 of a pair of soft, wire, non-resilient armatures 66. One armature 66 is embedded in the arm 24 and the other armature 66 is embedded in the arm 26 constituting support means therefor. Each armature 66 extends from an associated hand 28 to the chest plate 52 and includes a bendable elbow portion 68 and a bendable shoulder portion 70 for retaining associated arms 24, 26 in bent positions at the elbow joints 32 and the shoulder joints 36. Unwanted bending of the upper arms 34 and the forearms 30 is prevented by an associated upper, rigid member 70 and a lower, rigid member 72, respectively. The members 70 and 72 may be made from any suitable rigid plastic material which may be bonded to the armatures 66 before

the armature means 50 is placed in a mold (not shown).

The armature means 50 also includes a pair of soft, wire, non-resilient armature members 74, each of which includes an upper end 76 and a lower end 78. The upper ends 76 are embedded in the stem portion 54 of the chest plate 52 and extend angularly, downwardly therefrom through the lower portion of the chest 16, the trunk 18 and associated legs 20, 22 with the lower ends 78 being embedded in an associated foot 38. Each armature member 74 also includes an upper, rigid member 80 and a lower, rigid member 82 and a rigid spherical member 84 which are embedded in an associated upper leg portion 44, a lower leg portion 40 and a foot portion 38, respectively, for preventing unwanted bending thereof. The members 80, 82 and 84 may be made from a suitable rigid plastic material which is bonded to associated armature member 74 before the armature means 50 is positioned within a mold (not shown). The armature members 66 and 74 may be made from a suitable soft, non-resilient wire, such as copper or annealed iron.

The toy 10 also includes a base member 86 made from a suitable magnetizable material and simulating a space sled which may be pulled over a suitable surface by a cord 88 attached to the base member 86. The figure toy 10 may be maintained in position on the base member 86 by a pair of magnets 90, each of which is embedded in a foot 38.

The joints 32, 36, 42 and 46 are each formed integrally with the associated portions of the toy 10 during the molding operation and are each provided with accordian-type pleats 92 (Figure 3), each of which includes a plurality of root portions 94 and a plurality of crowns 96 for enhancing the space suit simulation of the toy 10 and for facilitating bending of the associated joints 32, 36, 42 and 46.

In use, the toy 10 may be bent to a number of different positions, as shown in Figure 4 for the arm 26, by bending the soft wire portions of the associated armature members 66 and 74 at associated joints 32, 36, 42 and 46. Unwanted bending between the joints is prevented by associated rigid members 52, 70, 72, 80 and 82. The spherical members 84 prevent associated ends 78 of the armature members 74 from piercing the bottom of the foot 38.

It is an important feature of the invention that unwanted relative rotation between the arms 24, 26 and their associated rigid members 70, 72 and between the legs 20, 22 and their associated rigid members 80, 82 is prevented. This may be accomplished by providing each of the rigid members 70, 72, 80 and 82 with lateral extensions 100.

It is also an important feature of the invention that relative rotation between the rigid members 70, 72, 80 and 82 and their associated armature members 66 and 74, respectively, is prevented. This may be accomplished by flattening a portion of the armature members 66, 74 where they are encompassed by their associated rigid members to provide lateral projections 102 on associated armature members 66 and 74.

In addition, relative rotation between the ends 64 of the armature member 66 and the chest plate 52 is prevented by flattening the ends 64 to produce lateral projections 104 thereon. The projections 104 become firmly embedded in the chest plate 52 during the molding operation. Also, the ends 76 of armature members 74 are flattened in like manner to produce lateral projections 105.

The projections 102 in the forearms 30 permit twisting the hands 28 to different rotated positions without also rotating the portion of the member 66 extending above the associated rigid members 72.

The projections 102 in the upper arm 34 permit rotating the forearm 30 at the elbow 32 without also rotating the portion of the member 36 extending above the associated rigid member 70.

In like manner, the projections 102 in the legs 20 and 22 facilitate rotating an associated leg below a particular joint without simultaneously rotating it above such joint.

Referring now to Figures 5 - 9, a modified pliable figure toy of the present invention, generally designated 10a, includes a head 12a, a neck 14a, a chest 16a, a trunk 18a, a pair of legs 20a, 22a and a pair of arms 24a, 26a. Each arm 24a, 26a includes a hand 28a, a forearm 30a, an elbow joint 32a and an upper arm 34a and is connected to the chest 16a by a shoulder joint 36a.

Each leg 20a, 22a includes a lower leg portion 40a, a knee joint 42a, an upper leg portion 44a and a hip joint 46a.

The toy 10a also includes an armature means 50a which may be embedded in the toy 10a by positioning the armature means 50a in a suitable mold (not shown) before molding the toy 10a therein by conventional injection molding techniques or the like. The armature 50a includes a chest plate 52a having an upstanding neck post 106 provided thereon for receiving the head 12a and the neck 14a.

10 The armature means 50a also includes a one-piece, soft-wire, non-resilient armature 66a having a mid-portion 108 embedded in the chest plate 52a and prevented from rotating with respect thereto by a flattened section 110 forming lateral projections 112 on the mid-portion 108. The armature 66a includes opposed ends 114 which may be embedded in associated hands 28a, a pair of bendable elbow portions 68a and a pair of bendable shoulder portions 70a which may be embedded in associated arms 24a, 26a for maintaining the elbow joints 32a and the shoulder joints 36a, respectively, in bent positions. Unwanted bending of the upper arms 34a and the forearms 30a is prevented by associated upper and lower rigid members 70a and 72a, respectively. Relative rotation between the members 70a and 72a and their associated arms 24a, 26a is prevented by providing lateral flanges 100a on each of the members 70a, 72a. 20 Relative rotation between the armature 66a and associated members 70a, 72a is prevented by flattened sections 102a of armature 66a, thereby forming lateral flanges 116 which become embedded in associated members 70a, 72a during the formation thereof by suitable molding operations. During such molding operations, a spherical member 118 may be formed on each end 114 of the armature 66a. Each spherical member 118 carries a lateral flange 120 and a lateral tab 122 for preventing relative rotation between the spherical member 118 and an associated hand 28a after the armature 66a has been embedded in associated arms 24a, 26a. The spherical member 118 also prevents the ends 114 from rupturing associated hands 28a during use of the toy 10a by a child user. Each 30 tab 122 may be used to support the armature means 50a in a mold (not shown) during the molding operation which embeds the armature means 50a in the toy

10a. Each tab 122 may then be broken away from the mold (not shown) leaving a jagged edge 124 embedded within an associated hand 28a.

10 The armature means 50a also includes a one-piece, soft-wire, non-resilient armature 74a comprising an inverted V-shaped member having a bight portion 76a embedded in the chest plate 52a and depending arms 126 which become embedded in the trunk 18a and associated legs 20a, 22a during the molding operation which forms the toy 10a. The arms 126 include lower ends 78a, each of which carries a simulated space boot 128 forming a foot 38a and the lower leg portion 40a on the toy 10. Each boot 128 includes an upper end 130 which is provided with an annular flange 132 for keeping the soft pliable material 134 forming the lower end of associated legs 20a, 22a from working up on the legs 78a during use of the toy 10a by a child user. Each boot 128 and the upper ends 130 thereof prevent unwanted bending of the armature 74a below associated knee joints 42a. Unwanted bending of the upper leg portions 44a is prevented by associated rigid members 80a which also include lateral flanges 100a for preventing relative rotation between associated rigid members 80a and their associated upper leg portions 44a. Relative rotation between the arms 78a and rigid members 80a is prevented by providing lateral flanges 102a on members 80a which become embedded in associated rigid members 80a during the formation thereof by a suitable molding operation.

20 Relative rotation between the boots 128a and associated arms 78a is prevented by lateral flanges 102a formed on the lower end 78b of associated arms 78a by flattening the lower ends 78b before the arms 78a are embedded in associated boots 128. The toy 10a may be supported on a suitable base member (not shown) by an annular flange 136 provided on the bottom of each boot 128.

30 While the particular figure toy herein shown and described in detail is fully capable of attaining the objects and providing the advantages hereinbefore stated, it is to be understood that it is merely illustrative of the presently preferred embodiment of the invention and that no limitations are intended to the details of construction or design herein shown other than as defined in the appended claims.



THE EMBODIMENTS OF THE INVENTION IN WHICH AN EXCLUSIVE  
PROPERTY OR PRIVILEGE IS CLAIMED ARE DEFINED AS FOLLOWS:

1. In combination with a figure toy having a torso and pliable limbs joined to said torso, said limbs including shoulder, elbow, hip and knee joints, improved armature means comprising: soft wire support means embedded in said limbs for maintaining said limbs in bent positions only at said joints; and rigid members affixed to said support means and embedded in said figure toy between said joints for preventing the bending of said limbs between said joints, said rigid members including means for preventing relative rotation between said limbs and said rigid members.
2. A combination as stated in Claim 1 wherein said support means includes means for preventing relative rotation between said support means and said rigid members.
3. A combination as stated in Claim 1 wherein said rigid members include a T-shaped chest plate having a stem portion extending along the major axis of said torso and a cross bar portion, the ends of said cross bar portion being positioned adjacent said shoulder joints, said soft wire support means including an end portion connected to each of said ends of said cross bar portion and an elongated portion extending through an associated shoulder joint, said soft wire support means also including soft wire members connected to said stem portion and extending through each of said hip joints.
4. A combination as stated in Claim 1 wherein said figure toy is molded from a pliable material and is shaped to simulate a space man wearing a space suit and wherein said joints include molded, accordin-type pleats formed integrally with said limbs and said torso during a molding operation, said pleats including root portions and crown portions facilitating the bending of said joints.
5. A combination as stated in Claim 1 wherein said rigid members include a chest plate having an upstanding neck post provided thereon, said chest plate being embedded in said torso with said neck post extending exteriorly thereof

for supporting a head on said torso.

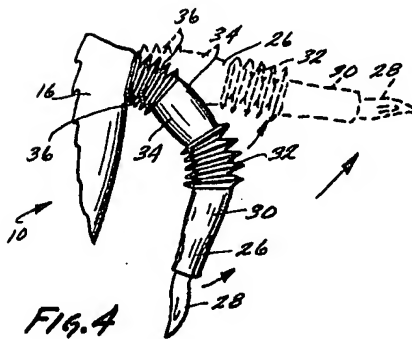
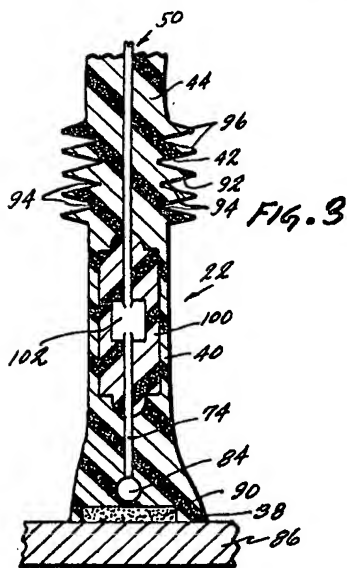
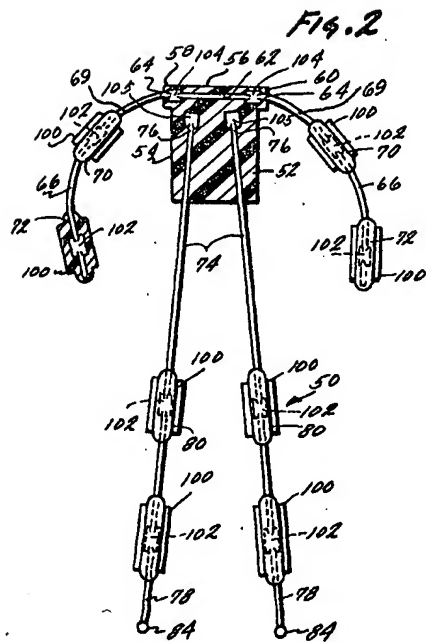
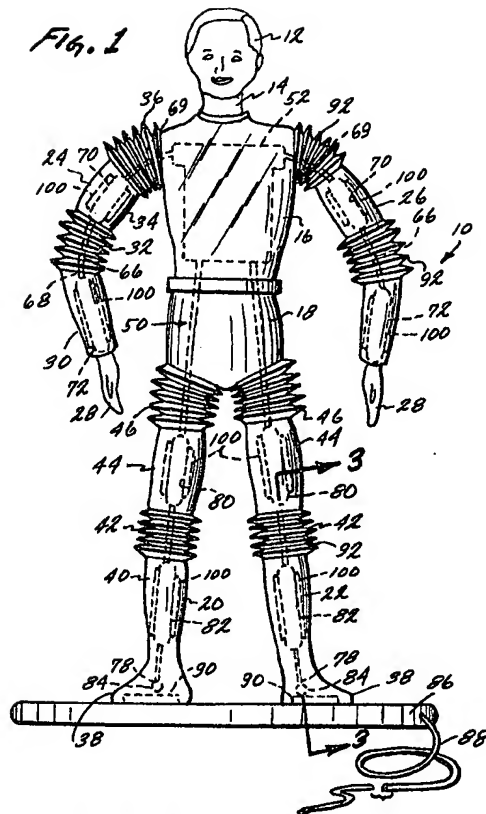
6. A combination as stated in Claim 2 wherein said limbs include a pair of legs simulating human legs having feet and wherein said armature means includes magnet means embedded in at least one of said feet for maintaining said figure toy in position on a magnetizable base member.

7. A combination as stated in Claim 2 wherein said armature means includes simulated boots connected to said support means and extending exteriorly of said limbs.

8. A combination as stated in Claim 4 wherein said rigid members include a separate member embedded in each of said limbs between each of said joints, and wherein said wire support means includes soft wire members extending through said joints into operative association with said separate members, said soft wire members including means embedded in said rigid members for preventing relative rotation therebetween.

9. A combination as stated in Claim 7 wherein said simulated boots include annular flange means for connecting said toy to a base member.

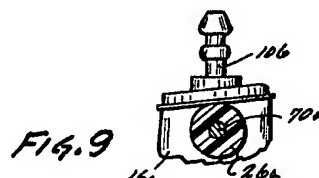
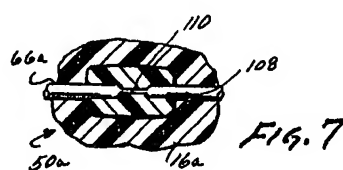
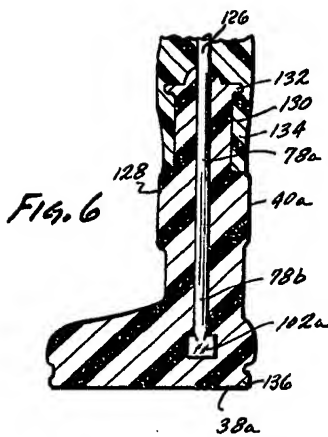
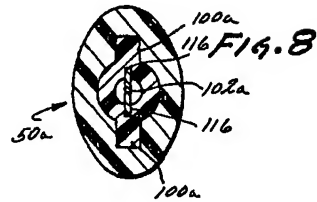
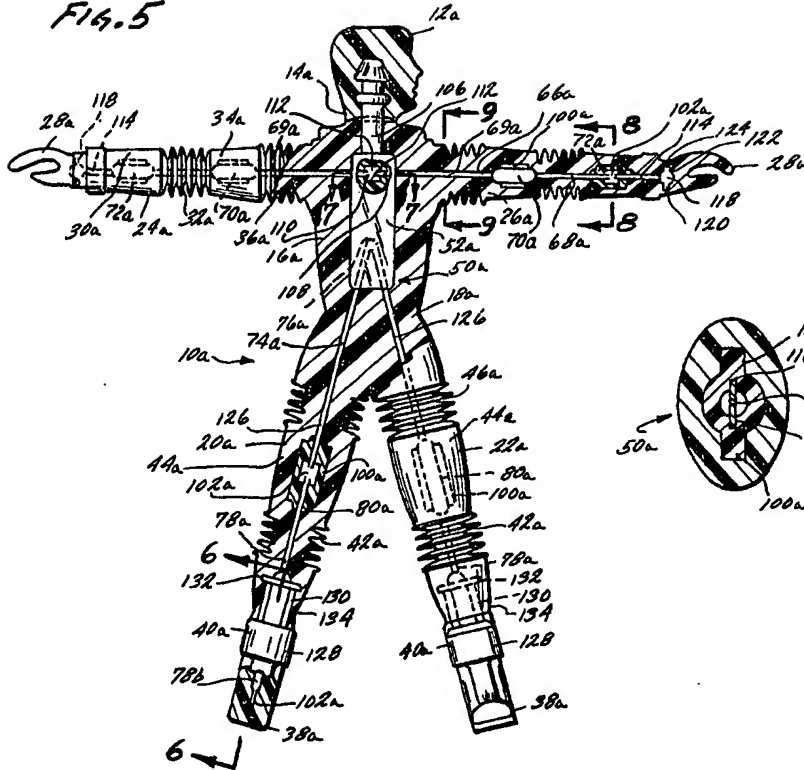




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Fig. 5



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